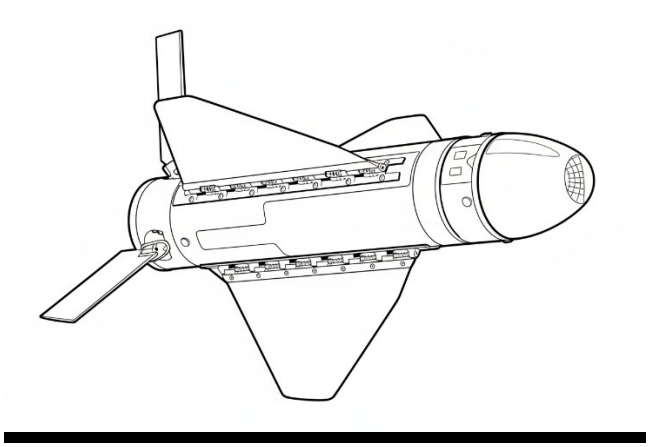
Northrop Grumman — Lumberjack™



IDENTITY & DESIGNATION

Official Designation: Lumberjack™

Manufacturer: Northrop Grumman Corporation (Lead Systems Integrator) — San Diego, California, USA

Airframe Partner: ESAero — Empirical Systems Aerospace, Inc. (airframe design and manufacturing)

Software Partner: Palantir Technologies Inc. (AI mission management, Maven Smart System, Agentic Effects Agent)

Country of Origin: United States

Year Introduced: 2025 — publicly unveiled April 30, 2025, Modern Day Marine Conference, Washington DC

Flight Testing: Commenced 2024 — OUSD R&E programme

Programme Status: TRL-6 achieved — seeking DoD procurement customer; no confirmed production contract as of publication

NATO/Allied Designation: None — U.S. developmental programme

Classification: Group 3 One-Way Attack UAS / Attritable Loitering Munition

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CLASSIFICATION

Domain: Air

Category: Military / Strike — Attritable One-Way Attack UAS

Sub-Category: Group 3 Jet-Powered Loitering Munition / Launched Effect

DoD UAS Group: Group 3 — 55–1,320 lb MTOW; 3,500–18,000 ft AGL; 100–250 kt

Terminal Mode: Expendable — one-way attack; optionally transitions to surveillance post-strike

Expendable: Yes — attritable by design; priced for operational loss

Multi-Role: Strike / ISR / Electronic Warfare — modular payload bay enables mission reconfiguration

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PHYSICAL SPECIFICATIONS

Gross Weight (MTOW): ~290 lb (131 kg)

Transport Weight: ~79 lb (36 kg) — without fuel or payload

Length: 71 inches (1.8 m)

Width (fuselage): 14 inches (0.36 m)

Height: 10 inches (0.25 m)

Wing Configuration: Two fold-out wings mounted upper fuselage — deploy after launch; two downward-canted fins at engine exhaust

Airframe Material: [VERIFY] — not publicly specified; likely composite construction for cost and producibility

Payload Bay: Modular center bay — configurable for kinetic strike, surveillance sensors, or EW payloads

Payload Class: Equivalent to 250-lb class (GBU-39 Small Diameter Bomb); Hatchet glide bomb dispenser capable

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PROPULSION & PERFORMANCE

Propulsion Type: Jet — turbojet or turbofan; specific engine not publicly disclosed

[VERIFY] Engine manufacturer and model — not released by Northrop Grumman as of publication

Max Speed: ~230 knots (~425 km/h; ~265 mph) — high subsonic

Operating Altitude: Up to ~18,000 ft (6,000 m) — Group 3 ceiling

Strike Range: 200+ miles (320+ km); manufacturer states 'several hundred miles' — exact figure not released

Loiter Endurance: ~2 hours — range/endurance trade-off applies

Launch — Ground: Pneumatic launcher (platform-agnostic, modified by ESAero). Described by Northrop technology director as 'effectively a potato gun — very cheap, very easy to build.' Field-deployable by small team; remote island basing capable.

Launch — Naval: Electric rail launch system — demonstrated for Navy surface combatants. Positions Lumberjack as affordable Tomahawk supplement for engagements such as Red Sea operations.

Launch — Air: In development — compatible with manned and larger unmanned platforms

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GUIDANCE, NAVIGATION & CONTROL

Navigation: GPS / INS hybrid — autonomous waypoint flight — AI-assisted mission management

AI System: Palantir Agentic Effects Agent — automated target detection, battlefield analysis, action suggestion under human supervision

Army Integration: Palantir Maven Smart System — integrated during Operation Lethal Eagle, 101st Airborne Division, April 2026

Control Link: Encrypted datalink — beyond-line-of-sight via satellite datalink for real-time mission updates and battle damage assessment

Autonomy Level: High — autonomous target detection and adaptive targeting; human-in-loop for engagement decisions

Multi-Role Transition: Demonstrated: transitions seamlessly from precision strike to surveillance mode post-attack

Software Architecture: Open systems via Palantir — third-party payload and mission integration without hardware redesign

Ground Control: Compatible with multiple control schemes — ground control, airborne control — via Palantir software layer

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SENSORS & PAYLOADS

Kinetic Payload: 250-lb class warhead equivalent — modular center bay configuration

Submunition Capability: Hatchet glide bomb dispenser — one Lumberjack sortie, multiple precision sub-munitions released

ISR Payload: Surveillance sensor suite — same airframe, modular bay reconfiguration

EW Payload: Electronic warfare module — [VERIFY] specific capability not publicly detailed

Target Detection: Palantir Agentic Effects Agent — AI-enabled automatic target identification and tracking

Battle Damage Assessment: Real-time BDA via satellite datalink — reported to operators beyond line of sight

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COUNTERMEASURE VULNERABILITY PROFILE

RF Jamming: LOW–MODERATE — high autonomy compensates; encrypted link; can complete mission autonomously if link lost

GPS Spoofing / Denial: MODERATE — INS backup navigation; AI navigation development ongoing; GPS not sole navigation source

EMI / EMC Attack: MODERATE — military-spec electronics; better hardened than commercial derivatives; not immune to HPM

Radar Detection: LOW–MODERATE — composite airframe reduces RCS vs. conventional UAS; not fully low-observable

Kinetic Intercept: MODERATE — high subsonic speed and small cross-section improve survivability; SHORAD capable of engagement

Laser / Directed Energy: MODERATE — no specific hardening documented; airframe vulnerable at short range

Fiber-Optic Tether: NOT APPLICABLE — free-flying platform; no tether present

Comms Intercept: LOW — encrypted frequency-hopped datalink; exploitation difficult

Overall Rating: LOW–MODERATE — most survivable attritable UCAV in class; designed to be expendable if lost

> *⚠ PETER NOTE: The ACM — Advanced Cruise Missile — was designed to penetrate Soviet air defenses at high subsonic speed with low-observable shaping. I worked on that program. Lumberjack achieves similar performance at a cost point that allows operational attrition. The ACM was too expensive to lose. Lumberjack is designed to be lost if necessary. That is not a compromise — it is a doctrine. When you accept expendability as a design requirement, the entire cost structure changes. You stop engineering for survivability at all costs and start engineering for acceptable loss rate at acceptable price. That shift changes everything about how you field, how you plan, and how you fight.*

CRUISE MISSILE CONVERGENCE NOTES

The Lumberjack is the convergence thesis in its most concentrated form. It is a jet-powered, GPS/INS-

guided, AI-enabled one-way attack platform carrying a 250-lb class warhead to targets 320+ kilometers away. By every technical definition, it is a cruise missile. Northrop calls it a UAS. Both are correct.

The launch agnosticism — pneumatic ground, electric rail naval, air-launched — mirrors exactly the multi-variant philosophy of the Tomahawk family: BGM-109 ground-launched, UGM-109 sea-launched, AGM-109 air-launched. Northrop's engineers did not invent this concept. They repriced it by three orders of magnitude.

The Palantir integration is the element that separates Lumberjack from previous-generation cruise missiles most clearly. The BGM-109 Tomahawk used TERCOM terrain-matching and DSMAC terminal guidance — fixed, hardware-defined, requiring classified targeting databases. Lumberjack uses Palantir's Agentic Effects Agent for adaptive AI targeting that updates in flight based on real-time battlefield data. The guidance is now software, not hardware. Software can be updated overnight. Hardware takes years.

> *ENGINEER'S NOTE: The open systems architecture via Palantir is significant beyond the immediate capability. It positions Lumberjack as a software-defined weapons platform — the airframe is the commodity, the intelligence is the product. This is the cruise missile's modular warhead philosophy translated into the software era. We used to swap seeker heads. Now we swap software agents. The delivery vehicle stays the same. The mission changes by upload.*

OPERATIONAL HISTORY

2024: Flight testing commenced — OUSD R&E programme — numerous test flights and customer demonstrations completed

April 30, 2025: Publicly unveiled — Modern Day Marine Conference, Washington DC — TWZ interview with Michael Bastin, Northrop technology director

October 2025: Displayed at AUSA conference, Washington DC — Janes interview confirms ESAero/Palantir partnership structure and attritable UAS designation

April 2026: Operation Lethal Eagle — 101st Airborne Division exercise — Lumberjack integrated with Palantir Maven Smart System; demonstrated autonomous target detection, adaptive AI targeting, post-strike ISR transition, and beyond-line-of-sight satellite comms

101st Airborne Assessment: 'Operation Lethal Eagle provided a unique opportunity to test and evaluate multiple new emerging systems. Northrop Grumman's Lumberjack was one of many systems that provided insight into how collaboration between military and industry can drive innovation in defense.' — Maj. Jonathon Bless, 101st Airborne Division PAO

Combat Record: None — developmental platform; no confirmed operational deployment or combat use as of publication

Procurement Status: Seeking DoD customer to transition from experimental development to production; no confirmed contract announced

Naval Interest: Electric rail launch demonstrated for Navy surface combatants — positioned as affordable Tomahawk supplement

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MANUFACTURING PHILOSOPHY

Lumberjack was designed explicitly around the cost-exchange asymmetry problem from the first day of development. Northrop built it from high-TRL (Technology Readiness Level) mature components — existing sensors, avionics, and munitions platforms — rather than developing new subsystems from scratch. The result: concept to first flight in under 14 months, a development timeline that would be measured in decades for a conventional cruise missile programme.

The partnership model is the manufacturing philosophy made structural. Northrop serves as lead systems integrator. ESAero handles airframe design and manufacturing — a small business chosen specifically because small businesses can 'build it, demonstrate it, test it' on timescales that large primes cannot match. Palantir handles software integration — commercial AI capability inserted into a defense platform without a classified development programme.

Michael Bastin, Northrop's programme director, described the teaming approach to Janes: 'We use these non-traditionals to really help us with speed to market, affordability, and leveraging the commercial industry. We have rapid software development capabilities from Palantir and we get scalable, predictable, flexible manufacturing at an affordable rate with ESAero.'

> *⚠ PETER NOTE: The pneumatic launcher description — 'effectively a potato gun, very cheap, very easy to build' — is not a dismissal of the capability. It is the key selling point for austere forward basing. A pneumatic ground launcher that a small team can*

> *deploy from a remote Pacific island is the strategic reach enabler that conventional cruise missiles required billion-dollar surface combatants or strategic bombers to provide. When the launcher is a potato gun, you do not need a warship. That is the democratization of standoff strike. I spent years on programmes where the launcher was the warship. This is the opposite philosophy, and for certain mission sets it is the correct one.*

SOURCES & CROSS-REFERENCES

Manufacturer:
https://www.northropgrumman.com/what-we-do/aircraft/lumberjack

Northrop Datasheet:
https://cdn.northropgrumman.com/-/media/Project/Northrop-Grumman/ngc/what-we-do/aircraft/lumberjack/lumberjack-uncrewed-aircraft-system-uas-datasheet.pdf

Op. Lethal Eagle (DefenseScoop):
https://defensescoop.com/2026/04/01/army-tests-lumberjack-drone-maven-smart-system/

AUSA 2025 (Janes): https://www.janes.com/osint-insights/defence-news/air/ausa-2025-northrop-grummans-lumberjack-offers-attritable-modular-uav

Flight Global:
https://www.flightglobal.com/military-uavs/northrop-grumman-unveils-lumberjack-one-way-attack-platform/164929.article

Northrop Press Release:
https://news.northropgrumman.com/autonomous-systems/northrop-grummans-lumberjack-advances-battlefield-capabilities

Cross-Reference: See Volume 2: Kratos UTAP-22 (different Lumberjack — loyal wingman variant); SpektreWorks LUCAS (comparable attritable OWA);

AGM-158 JASSM (higher-end cruise missile comparison); Hatchet glide bomb (Lumberjack submunition)

Volume 1 Cross-Reference: Chapter 4 (Convergence Thesis — software-defined weapons); Chapter 6 (Strike Mission — attritable UCAV category); Chapter 21.4 (Missile & Rocket Systems — cost-exchange)

Note: Lumberjack and Hatchet are a system. The Hatchet glide bomb data card should be read alongside this card — Hatchet is Lumberjack's primary submunition payload.